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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,149	12/04/2001	Tracy J. Kimbrel	00280683AA	8249
30743	7590	09/08/2006	EXAMINER	
WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			KRISCUNAS, LINDA MARY	
			ART UNIT	PAPER NUMBER
			3623	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,149

Applicant(s)

KIMBREL ET AL.

Examiner

Linda Krisciunas

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a Non-Final action in response to the Appeal Notice filed July 28, 2006. A Pre-Appeal Review was conducted, resulting in the re-opening of prosecution. Claims 1-27 are pending.

Response to Arguments

2. All arguments are moot in light of the new art rejection below.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-27 merely recite associating demand with a benefit and finding a time-varying resource allocation that would yield a benefit. The claimed limitations are not embodied on a readable medium and do not set forth a practical application with a real-world result, and thus are not tangible. They do not positively recite allocating the resources or displaying, storing or communicating the information, as indicated by the preamble.

Under the statutory requirement of 35 U.S.C. 101, a claimed invention must produce a useful, concrete and tangible result. For a claim to be useful, it must yield a result that is specific, substantial, and credible (MPEP 2107). A concrete result is one that is substantially repeatable, ie, it produces substantially the same result over and over again. In order to be tangible, a claimed invention must set forth a practical application that generates a real-world result, ie, the claim must be more than a mere

Art Unit: 3623

abstraction. Additionally, a claim may not preempt abstract ideas, laws of nature or natural phenomena nor may a claim preempt every substantial practical application of an abstract idea, law of nature or natural phenomena because it would in practical effect be a patent on the judicial exceptions themselves. Thus, claims 1-27 are not statutory.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim limitations do not produce the result indicated in the preamble.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al (US 2005/0256778) in view of "TCP Dynamic Acknowledgment Delay:

Theory and Practice" by Dooly et al, Proceedings of the 30th annual ACM symposium on Theory of computing, ACM Press, 1998; hereinafter referred to as Dooly.

As per claim 1, Boyd teaches resource allocation comprising: associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company.). Boyd does not explicitly teach time-varying resource allocation. Dooly teaches that it is known to find a time-varying resource allocation that would yield a benefit (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

As per claims 2, 13 and 23, Boyd teaches discounting future benefits (paragraph 244: "boundaries and constraints" whereby these features represent a discounting

action since the boundary on the price achieved in the future would need to take into consideration the time-value of money); and finding optimal allocations of resources from current time through current time plus lookahead based on discounted benefit and forecast demand, wherein the step of discounting future benefits is based on a future discounting algorithm (The combination of paragraph 105: "predicting future customer demand" and paragraph 250: "Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem." This teaches that the algorithms are used to determine both present and future information). Boyd does not explicitly teach "lookahead" factors. Dooly teaches that it is known to have "lookahead" factors (paragraph 1: lookahead coefficient. See also paragraphs 8 and 51). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a lookahead factor to provide means to anticipate future demands and adequately allocate resources accordingly.

As per claims 3, 14 and 24, Boyd teaches the future discounting algorithm is based on a policy which, when faced with a choice between a guaranteed benefit immediately and a potential benefit in the future, a decision is made by comparing the guaranteed benefit value with a discounted value of the potential future benefit (The combination of paragraph 105: "predicting future customer demand" and paragraph 250: "Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem." This teaches that the algorithms are used to

determine both present and future information and since the objective of this teaching is to optimize price and profit, it would be inherent that the system would calculate both and chose the option that optimizes profit the most.).

As per claims 4-5, 15-16 and 25-26, Boyd teaches the future discounting algorithm is a deterministic algorithm (paragraph 250: "Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem") that achieves a competitive ratio of $(1 + 1/L)^{L/(L+1)}$ (paragraph 101 indicates a calculated ratio as well), where L is a lookahead factor which models some amount of future demand known to a provider of the resource (paragraph 105 teaches determining future demand). Boyd does not explicitly teach "lookahead" factor and competitive ratio. Dooly teaches that it is known to have a "lookahead" factor and competitive ratio (For lookahead factor see paragraph 1: lookahead coefficient. See also paragraphs 8 and 51. For competitive ratio see paragraph 8.). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a lookahead factor and competitive ratio to provide means to anticipate future demands and adequately allocate resources accordingly.

As per claim 6, teaches resource allocation is done to maximize a benefit (Paragraph 241 teaches a pricing optimization system which is trying to maximize the benefit of profit to the company).

As per claims 7 and 17, Boyd teaches the benefit is a tangible benefit (paragraph 241: pricing optimization in tangible).

As per claims 8, 18 and 27, Boyd teaches the tangible benefit is a profit and resource allocation is done to maximize the profit (paragraph 241: "The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining an optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need. Other types of pricing optimization solution are also known." Whereby additional resources would be applied to the promotion that proves to be optimal).

As per claims 9-10 and 19-20, Boyd teaches the benefit is an intangible benefit, particularly customer satisfaction where resource allocation is done to maximize customer satisfaction (paragraph 241: "meet a user's need" is intangible and satisfies a customer).

As per claims 11 and 21, Boyd does not explicitly teach computer cycles and resource allocation. Dooly teaches that it is known that the resource is computer cycles and resource allocation is done to more efficiently solve computationally intensive problems (paragraph 1 where the network contains computers which cycle through transmission control protocol acknowledgments and the arrival times are sequenced such that the computer's resources are allocated in an optimal fashion). Dooly is an analogous art as it also teaches about solving for a resource optimization problem.

Art Unit: 3623

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a computer cycling resource allocation problem as this claim language indicates the intended use only and does not impact the functionality of the invention. The optimization could be applied to various resources in various industries. The recitation of the intended use or purpose of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use or fulfilling said purpose, then it meets the claim. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

As per claim 12, teaches modeling the resource allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price variation cycle, and data collection frequency." Whereby time interval represents a fixed length of time); and associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application

Art Unit: 3623

1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company). Boyd does not explicitly teach time-varying resource allocation. Dooly teaches that it is known to find a time-varying resource allocation that would maximize benefit gained (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

As per claim 22, teaches modeling the server allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that each site's demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price

Art Unit: 3623

variation cycle, and data collection frequency.” Whereby time interval represents a fixed length of time); maintaining server allocation fixed for the duration of an interval, servers being reallocated only at the beginning of an interval, and a reallocated server being unavailable for the length of the interval during which it is reallocated providing time to “scrub” the old site (customer data) to which the server was allocated, to reboot the server and to load the new site (820) to which the server has been allocated, each server having a rate of requests it can serve in a time interval (530) and customers share servers only in the sense of using the same servers at different times, but do not use the same servers at the same time (It is inherent in a computer system with a server (20) that the server is dedicated to one task at a time and that it has a rate at which it can handle requests and that old data would need to be removed and new information loaded onto it.); and associating each customer’s demand with a benefit gained by the service provider (paragraph 241: “Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user’s need” whereby the customer’s demand for the product will affect price and improve the profit to the company). Boyd does not explicitly teach a time-varying server. Dooly teaches that it is known to find a

time-varying server allocation that would maximize benefit gained by satisfying sites' demand (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art also teaches about resource allocation optimization: O'Neill et al (US 2003/0037146), "On-Line Analysis of the TCP Acknowledgement Delay Problem" by Dooly et al, Journal of the ACM, March 2001; "Lookahead routing for ring networks with random extra links" by Kovacevic, IEEE, 1995; and "BPSS: A Scheduling support system for the Packaging Industry" by Adler et al, Operations Research, July-August 1993.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Krisciunas whose telephone number is 571-272-6931. The examiner can normally be reached on Monday through Friday, 6:30 am to 3:00 pm.

Art Unit: 3623

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LMK

LMK

August 30, 2006

Romain Jeanty
Primary Examiner
Art Unit 3623